

Amendments to the Claims

This listing of claims will replace all prior versions, or listings, or claims in the application.

Listing of Claims:

1. (Original) A hybrid piston engine-pulsed detonation engine structure for obtaining shaft power from a pulsed detonation engine, comprising:
 - a pulsed detonation engine;
 - a piston engine operatively connected to said pulsed detonation engine, said piston engine having one or more cylinders; and
 - a detonation tube interconnecting each said cylinder with said pulsed detonation engine, each said tube comprising means through which each said cylinder of said piston engine communicates with said pulsed detonation engine.
2. (Original) The hybrid engine structure of claim 1 wherein each said detonation tube is disposed perpendicular to the respective cylinder to which it is connected.
3. (Original) The hybrid engine of claim 2 wherein said piston engine comprises at least four cylinders.
4. (New) A hybrid engine comprising:
 - a piston engine having a head, an engine block, and at least one cylinder positioned within the engine block;
 - a spacer block sandwiched between the head and the engine block, the spacer block adapted to longitudinally increase the volume of the cylinder; and
 - a detonation tube having a proximal end and a distal end, the proximal end of the detonation tube being attached to the spacer block, the detonation tube being in operational communication with the cylinder whereby a detonation in the detonation tube communicates energy towards the distal end of the detonation tube and into the cylinder.

5. (New) The hybrid engine of claim 1 wherein the detonation tube is perpendicularly connected to the cylinder.
6. (New) The hybrid engine of claim 1 wherein the piston engine comprises at least four cylinders.
7. (New) The hybrid engine of claim 1 wherein the piston engine further comprises an ignition system attached to the head.
8. (New) The hybrid engine of claim 1 wherein the piston engine further comprises an intake valve attached to the head.
9. (New) The hybrid engine of claim 1 wherein the piston engine further comprises an exhaust valve attached to the head.
10. (New) The hybrid engine of claim 1 wherein the piston engine further comprises a piston positioned within the cylinder.
11. (New) The hybrid engine of claim 10 wherein the piston engine further comprises a crankshaft operationally attached to the piston.
12. (New) The hybrid engine of claim 11 wherein the piston engine further comprises a camshaft in operational communication with the crankshaft.
13. (New) A method for generating shaft power comprising the steps of:
providing a hybrid engine having a piston engine with a head, a spark plug, an intake valve, and an exhaust valve attached to the head, an engine block, at least one cylinder positioned within the engine block, a piston positioned within the cylinder, a cam in operational communication with the piston, a spacer block sandwiched between the head and the engine block, the spacer block adapted to longitudinally increase the volume of the cylinder, and a

detonation tube having a proximal end and a distal end, the proximal end of the detonation tube being attached to the spacer block, the detonation tube being in operational communication with the cylinder;

starting the hybrid engine; and

setting the spark timing so that energy from the detonation cycle occurs while the piston is traveling away from the head at the maximum velocity.

14. (New) The method of claim 13 further comprising the step of providing an electric motor to provide external power to start the hybrid engine.

15. (New) The method of claim 13 further comprising the step of providing a stoichiometric mixture of hydrogen and air through the intake valve.

16. (New) The method of claim 13 further comprising the step of using an air compressor to supply air to the hybrid engine.

17. (New) The method of claim 13 further comprising the step of closing the intake valve when the cam rotates about fifteen degrees from the top dead center of the piston cycle.

18. (New) The method of claim 13 further comprising the step of firing the spark plug when the cam rotates about thirty degrees from the top dead center of the piston cycle.

19. (New) The method of claim 13 further comprising the step of opening the exhaust valve when the cam rotates about one hundred thirty degrees from the top dead center of the piston cycle.

20. (New) The method of claim 13 further comprising the step of opening the intake valve when the cam rotates about two hundred fifty-five degrees from the top dead center of the piston cycle.